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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/042,979 | 01/09/2002 | John P. Dilger | 06005/37770 | 6666 |

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| EXAMINER |
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TSAI, CAROL S W

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| ART UNIT | PAPER NUMBER |
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2857

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/042,979 | DILGER, JOHN P. | |
| | Examiner | Art Unit | |
| | Carol S Tsai | 2857 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 12, 15, 16 and 19 is/are rejected.
- 7) ☒ Claim(s) 9, 11, 13, 14, 17, 18, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5/6/02&5/5/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 7, 8, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S.

Publication 2003/0052083 to Kim et al.

With respect to claims 7, 8, and 15, Kim et al. also disclose a method for verifying the operation of a chemical detection system, the method comprising the steps of: performing diagnostic routines on the chemical detection system, the diagnostic routines comprising controlling the exposure of a chemical sensor and taking measurement of surrounding environmental conditions (see paragraphs 0040-0045); measuring the response of a chemical sensor to the controlled exposure and the surrounding environmental conditions (see paragraphs 0052-0057); storing response data in a memory device (see paragraph 0041); and generating diagnostic data from the response data (see paragraphs 0010-0012 and 0020-0026).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S.

Publication 2003/0052083 to Kim et al. in view of U. S. Patent No. 6,272,938 to Baghel et al.

With respect to claims 1-3, Kim et al. disclose an apparatus for diagnosing a chemical detection system comprising: a sample retrieval device (apparatus 102 shown on Fig. 2) for collecting and detecting emissions, wherein the sample retrieval device (sampling device 25 shown on Fig. 2) includes an accumulator chamber (chamber 106 shown on Fig. 2) having a sample port for receiving the emission from an emission source (process gas supply 138 shown on Fig. 2), a chemical sensor (detector 201 shown on Fig. 2) for detecting the emission, and an exhaust port (exhaust 144 shown on Fig. 2) for exhausting the detected emission; and a control module (controller 300 shown on Fig. 2) containing a first operational mode to control the sample retrieval device and a second operational mode to perform a diagnostic routine to validate the performance of the sample retrieval device (see Figs. 2 and 3 and paragraphs 0033 and 0037-0044).

Kim et al. do not disclose the chemical sensor being located within the chamber.

Baghel et al. teach the chemical sensor being located within the chamber (see col. 3, lines 8-20).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kim et al.'s system to include the chemical sensor being located within the chamber, as taught by Baghel et al., as a matter of engineering design choice.

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5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Baghel et al. as applied to claim 1 above, and further in view of U. S. Patent No. 4,726,225 to Brace et al.

As noted above, Kim et al. in combination with Baghel et al. teach all the features of the claimed invention, but do not disclose measuring the absolute frequency shift of the chemical sensor.

Brace et al. disclose measuring the absolute frequency shift of the chemical sensor (see col. 2, line 65 to col. 3, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kim et al. in view of Baghel et al.'s system to include measuring the absolute frequency shift of the chemical sensor, as taught by Brace et al., in order that mass flow rate can be measuring.

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Baghel et al. as applied to claim 1 above, and further in view of U. S. Patent No. 6,455,319 to Lewis et al.

As noted above, with respect to claims 5 and 6, Kim et al. in combination with Baghel et al. teach all the features of the claimed invention, but do not disclose measuring the response of the chemical sensor to the controlled exposure being comprised of quantifying chemical sensor noise.

Lewis et al. teach measuring the response of the chemical sensor to the controlled exposure being comprised of quantifying chemical sensor noise (see col. 15, lines 25-35).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kim et al. in combination with Baghel et al. system to include measuring the response of the chemical sensor to the controlled exposure being comprised of quantifying chemical sensor noise, as taught by Lewis et al., in order that the standard deviations, $S_{a,d}$ and $S_{b,d}$, obtained from all the individual array responses to each of a and b along the vector d, can be used to describe the average separation and ultimately to define the pairwise resolution factor used to quantify the resolving power of a column in gas chromatography (see Lewis et al., col. 15, lines 29-33).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of U. S. Patent No. 5,541,851 to Sato et al.

As noted above, Kim et al. disclose the claimed invention, except for quantifying the chemical sensor saturation potential.

Sato et al. teach quantifying the chemical sensor saturation potential (see col. 4, lines 28-47).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kim et al.'s method to include quantifying the chemical sensor saturation potential, as taught by Sato et al., in order to enable the chemical/physical quantity analysis and evaluation can be conducted at high speed without degradation of evaluation capability owing to sensor saturation (see col. 2, lines 19-22).

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8. Claims 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of U. S. Patent No. 6,455,319 to Lewis et al.

As noted above, with respect to claims 12 and 19, Kim et al. disclose the claimed invention, except for measuring the response of the chemical sensor to the controlled exposure being comprised of quantifying chemical sensor noise.

Lewis et al. teach measuring the response of the chemical sensor to the controlled exposure being comprised of quantifying chemical sensor noise (see col. 15, lines 25-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kim et al. method to include measuring the response of the chemical sensor to the controlled exposure being comprised of quantifying chemical sensor noise, as taught by Lewis et al., in order that the standard deviations, $S_{a,d}$ and $S_{b,d}$, obtained from all the individual array responses to each of a and b along the vector d, can be used to describe the average separation and ultimately to define the pairwise resolution factor used to quantify the resolving power of a column in gas chromatography (see Lewis et al., col. 15, lines 29-33).

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of U. S. Patent No. 4,726,225 to Brace et al.

As noted above, Kim et al. disclose the claimed invention, except for measuring the absolute frequency shift of the chemical sensor.

Brace et al. disclose measuring the absolute frequency shift of the chemical sensor (see col. 2, line 65 to col. 3, line 2).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kim et al.'s method to include measuring the absolute frequency shift of the chemical sensor, as taught by Brace et al., in order that mass flow rate can be measuring.

Allowable Subject Matter

10. Claims 9, 11, 13, 14, 17, 18, 20, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dilger discloses a method and apparatus for collecting fugitive emissions from valves and other emissions sources.

Guthrie et al. disclose a sample may be analyzed by sampling a quantity of the sample so as to provide a respective quantity of vapor phase molecules of the respective complex sample to a, mass sensor; performing a succession of scans of the sample, so as to generate a respective series of mass spectra; compiling a $k \times n$ vector matrix representative of a plurality of temporal profiles derived from the plurality of mass spectra; performing one or more multivariate data analysis routines with respect to the vector matrix; and, in response to the multivariate data analysis routine, reporting the results of the analysis.

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Berger discloses an apparatus and method for measuring chemical, biological, nuclear agents in an environment including several detectors capable of measuring concentrations of the agents in the environment and a processor capable of operating an algorithm which, based on two sequential measures of concentration of the agent, estimates decay or elevation rate of the concentrations of the agent and feeds this estimated change rate to a Kalman filter which predicts the next measurement.

Palocz-Andresen discloses the emission control in motor vehicles but also in ships, airplanes and diesel locomotives.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. W. Tsai whose telephone number is (571) 272-2224. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax number for TC 2800 is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (571) 272-1585 or (571) 272-2800.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the

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examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

A handwritten signature in black ink, appearing to read "Carol S. W. Tsai". The signature is fluid and cursive, with a prominent initial "C" and a stylized "S".

Carol S. W. Tsai
Patent Examiner
Art Unit 2857

03/21/04